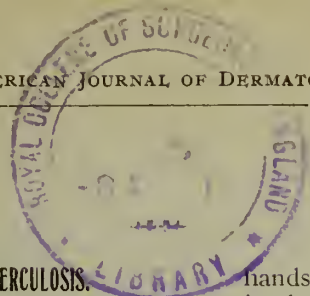


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16.

SECONDARY VESICAL TUBERCULOSIS.

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The consideration of such an important subject as tuberculosis of the bladder demands the closest attention of the general medical man especially, as well as of the surgeon and the specialist in genito-urinary diseases. Too often, alas! a patient goes to his family physician complaining of bladder or kidney symptoms, usually the former, and is given a very superficial examination—if, in fact, he is given any at all. As a usual procedure, his physician says to him, after inquiring into the subjective symptoms of the case, "Oh, you are not a very sick man; just leave a specimen of your morning and evening urine at the office when you go by to-morrow." Often this urine is never examined, and the patient is dismissed with simply a urinary antiseptic illy chosen and without any therapeutic regard to the condition at stake.

For the purpose of bringing up and, if possible, of delineating the proper methods of examination and determination regarding an operation for tuberculosis of the bladder, this paper has been prepared. If I exhibit the subject in too pedantic a form, I trust that I may be pardoned, for there is not much definite knowledge to be gleaned as yet from the literature.

Considering the etiology of the condition, we should first take into account the fact that the infection may be of several forms. It may partake of a tuberculosis the same as in other organs, but a primary tuberculosis of the bladder is extremely rare. When it is of the primary type it usually affects the sexual organs as well. Herberg makes the broad statement that from several thousand autopsies which he has performed he has found it secondary in two-thirds of the cases, leaving us to surmise that one-third was primary. I personally believe that he states the percentage of primary tuberculosis of the bladder as being too high.

When primary in the bladder we must make note of the ever-present fact of the point of least resistance entering into the case and the locating of the tubercle bacilli at this point. Therefore, a gonorrheal cystitis or a cystitis secondary to an old gonorrhea may form a site very favorable for the location of the tubercle bacilli.

Again, with the oft-mishandling of strictures by means of sounds and dilators at the

hands of the average practitioner, there enters in the factor of trauma, whereby the bladder wall is injured and the locating of the bacilli at this point through a hematogenous infection. In this connection we should not take into consideration the transplanting of a primary tuberculosis of the prostatic urethra or the genital organs through manipulation, on the bladder wall, or the carrying of the tubercle bacilli by means of the blood or lymphatic stream from an already existing focus into the walls of the bladder, and thereby setting up a secondary tuberculosis in the bladder proper. Casper in his admirable textbook speaks of the etiology of tuberculosis of the bladder as being usually present, together with some focus of tuberculosis in the lungs, thereby making it a secondary feature where the primary lesion has not been located. Lastly, we might mention the factor (which is so often overlooked by the average man) of tuberculosis of the bladder being secondary to a tuberculosis of the kidney; for, if we refer once more to Herberg's statistics, we find that in his several thousand autopsies a secondary infection of the bladder was usually present, accompanying the tuberculosis of one or both kidneys. And it is especially upon the subject of secondary infection of the bladder from a tuberculosis of the kidney that I would lay special stress.

As to whether the infection is by a deposit of tubercular germs around the neck of the bladder, and the consequent irritation and lighting up of the infection there by means of the urine, or as to whether it is by means of a direct infection extending along the ureter and thus down into the bladder, I would call to your minds that the second method perhaps is the most common. Of course, this can only be arrived at through a complete examination of the patient and especially of the part involved, ending up with a cystoscopic examination of the bladder, and by the picture thus presented reasoning out as to the probable infection of a ureter or kidney.

Ammoulin is a firm believer in the theory that there is a submucous network of lymphatics connecting the ureter, the kidney and the prostate, and by means of these lymphatics a primary tuberculosis in any of these parts is quickly carried to the bladder, where it presents its symptoms. We can readily appreciate that where there has been a previous history of tuberculosis in a family, and a chronic inflammatory condition is present in the patient, the bladder may become infected

secondarily, or by means of coitus, a primary tuberculosis can be set up within the organ.

It usually affects the period of activity of the sexual organs, rarely found in children under ten years of age, and even more rarely in extreme old age. In eighty per cent. of the cases, more common in men than in women, and Morris has given us the fact that this is probably because of the sexual apparatus in the male being one with the urinary organs, while in the female there are two sets of organs.

The morbid anatomy usually gives us at the time of autopsy a small, shrunken bladder, with walls greatly thickened, surrounded by sclerosed and fatty tissue. In the mucous membrane we may find lesions of a general miliary type, with discreet tubercles beneath the epithelium appearing as white minute areas very small in size and with congested surroundings. These may extend, and becoming confluent, form typical tubercular ulcers. The mucous membrane is red, swollen and of velvety characteristics. The tubercular ulcer is rounded, disc-shaped, usually forming itself very quickly, about the size of a three-cent piece. The floor is roughened, of a dark and congested appearance, the walls are elevated and slightly undermined, hard to the touch, and on palpation give one somewhat of a muscular sensation. The depth may vary from destruction of the surface to perforation of the organ, and where the latter is seen, there may be fistulous openings into other organs or directly external to the outer air. Perforation is extremely rare, probably due to the resistance of the pericystic tissue, and always when present is accompanied by a mixed infection. The bladder, by reason of its contracted condition, contains but a little urine at one time.

The lesions are usually seen around the mouth of a ureter or at the trigone, and there may be accompanying ulcers from a modified cystitis, which may lead one to expect only a simple cystitis. Whatever softening of the bladder wall is present is usually seen at the sides of the trigone, and it is usually at the post-cystic space that the fistulæ originate.

The symptomatology is one of extreme importance, inasmuch as the symptoms are masked for so long a time, and seldom does the patient come to the physician at a time when a diagnosis cannot be accurately made. Perhaps the symptom which is most common is frequency of micturition, usually after meals or at night. This may last for a long time, gradually becoming worse, due to the increasing congestion of the mucous membrane and the breaking down of the same, with an increasing amount of blood and pus in the urine as the secondary, or mixed, infection

appears. It must be borne in mind that these symptoms are usually seen in the young (of from 15 to 40 years of age), and that by reason of the dorsal decubitus assumed at night, at this time is the frequent urination aggravated. This irritability is usually characteristic, especially so in the later stages, when it becomes necessary to empty the bladder so soon as the urine strikes one of the ulcers, producing pain in the perineum, extending along the under surface of the penis and sometimes even into the glans itself, simulating stone in the bladder, and misleading one very greatly. Spasm is present after urination, and this increases pain. When the secondary infection occurs, as it always does eventually, there is pain before urination, during the same and after the bladder has been apparently emptied, so much so that the patient dallies at the urinal for an exceedingly long time. When this stage has been reached, a quite generally accepted method of diagnosis is by means of an injection of nitrate of silver into the prostatic urethra and bladder, when an exceedingly sharp spasm is set up, as the tuberculous bladder will not tolerate nitrate of silver.

It may be that the change from a chronic cystitis of long standing to one of tuberculous cystitis is so mild as to throw one off his guard; hence it behooves one, in a persistent cystitis of long standing, to be sure and bear in mind this factor.

The urine, which will next be brought to the attention of the physician, is at first perfectly clear, always acid, and upon examination apparently normal, save for an increased amount, possibly reaching two quarts, and a few epithelia are noted upon microscopical examination. Later the urine becomes cloudy in intermittent periods, and eventually contains red blood cells continuously intermingled with an increasing number of pus cells, with mucus and with an abundance of albumin. If casts are found, and epithelia from the kidneys and ureters, it assures one in his suspicion that a renal lesion is present, probably of a tubercular character, and should suggest further search. Instrumentation at this time is only moderately painful and may or may not set up a hemorrhage.

Hematuria is the factor which usually draws the patient to the physician; at first due to congestion of the mucous membrane, with capillary hemorrhage, and later due to hemorrhage from the lacerated surface, spontaneous in character, and at the end of micturition with a spasm, never free, as with neoplasms or ruptured vessels, and uninfluenced by exercises. The bleeding is for a few days or hours, and then waits and recurs. Microscopically, there can always be found some red cells, and

there is a trace of albumin in the urine. As the lesions progress the blood apparently diminishes, but grows more continuous as the pain increases. When I speak of "continuous as the pain increases," I mean to suggest that the blood is found microscopically; for with the admixture of pus and mucus it eventually becomes a very hard matter to differentiate it macroscopically.

Weight. This is to be noted particularly, inasmuch as it at first does not affect the patient the same as tubercular conditions located elsewhere in the body, and one is at times surprised at the maintenance in weight sustained by the patient, by reason of his having to rise often at night to empty his bladder, and the mild toxemia from which he suffers. Later there is the usual loss.

Appetite is usually affected, and we find the patient has another phase of the phthisical condition, having a distaste for almost every food placed before him. Contrary to the condition found in tuberculosis elsewhere, there is apparently very little perspiration at night, and the patients, in between their periods of urinating, enjoy quite sound rest. However, when secondary infection comes, or the bladder is extremely involved, rest becomes decidedly broken.

In the temperature we have a peculiar condition, in that it is usually subnormal up to the point where a secondary infection sets in, and then there is no way by which we can differentiate the tubercular temperature from the septic temperature, and we are compelled to look upon the rise in fever at this time as being due to a mixed toxemia.

The pulse varies in its regularity, exhibiting tubercular toxemia quite well, although this is not always present at the inception of the disease, for we find that the involvement may be so small at first as to practically give no systemic manifestation.

Associated with the local conditions we may also have that of a slight cough, where the tuberculosis of the bladder is secondary to that of the lung, and wherever we find patients exhibiting these two symptoms synchronously, we should religiously search the urine and the sputum at varying periods, in order to establish absolutely the presence or absence of the tubercle bacillus.

Should, perchance, the patient have suffered from a previous gonorrhea of recent origin, we will often find that the irritation from the tuberculous urine is liable to set up a recrudescence of the disease, and more especially so where a latent gonorrhea is hidden behind a stricture.

The diagnosis is oftentimes difficult when the patient first goes to the physician, for the reason that frequency of urination is seen in many other conditions. However, in persons

between the ages of 15 and 45, where there is a frequency of micturition present with occasional hematuria, where there is a family history of tuberculosis or the patient is occupying a house where tuberculosis is known to have existed, then the urine should be carefully saved for 24 hours methodically once a week, for the purpose of bacteriological and animal diagnosis, and the history of his whole case entered into carefully, together with an explanation as to what the condition may be. Suspicion should be aroused also where an attack of cystitis follows a prolonged period of frequent urination; and I believe that the diagnosis of tuberculosis of the bladder, or perhaps of the genito-urinary organs, should be entertained from the very beginning in a case of phthisis pulmonalis where cystic symptoms are intercurrent. When the middle coat of the bladder is infected, then we simply have a slowness in starting the stream, a difficulty in emptying the bladder, and weakness in the projection of the stream, due to the mild infiltration of the detrusor muscle plane, followed by a slight residual urine, due to the lesion progressing and still keeping within the coat of the bladder. Then it gradually affects the nerve filaments and gives a feeling of pain behind the pubis, when there is a slight pressure within the bladder itself. This is followed by a condition of over-distension, and then comes hematuria.

Morrow speaks in somewhat the same words of the above symptoms when there is a primary tuberculosis in enteritis or localized peritonitis, or peritonitis of the peritoneal folds of the bladder, from these parts extending to the muscular coat of the bladder and the implanting there of the infection. It is in this condition that cystoscopy renders such excellent aid, and is, in fact, the only way in which a positive diagnosis can be made. I believe that this manner of infection is much more common than supposed; in truth, about equal with all other primary modes of infection of the organ.

When the infection is noted as coming from the prostate, the symptoms are exhibited especially with bright red blood, together with the symptoms of cystitis, but minus the large amount of pus which one would suspect. König makes the broad statement that half the patients who complain of pus in the urine as their principal symptom are tubercular; but, unfortunately, I do not believe that he takes into consideration the early cases of prostatic enlargement and those with a primary or secondary gonorrheal cystitis engrafted thereon.

What, then, should be the proper routine method of diagnosis of a case in which tuberculosis of the bladder is suspected?

(a) A careful history of the patient should

be taken from the inception of the disease or when the symptoms were first noted, going especially into the family history and into the residence history of the patient, regarding the liability to infection and the susceptibility of the patient to the disease, noting carefully any evidence of tuberculosis in the testicle, prostate, seminal vesicles or in the lungs or other organs, and taking into consideration any tubercular aspect which the patient may present. Extremely minute notes should be made of the resistance of the apparent cystitis to treatment at the hands of physicians, for it is the tuberculous case which travels from one to the other in its primary stage, vainly seeking an accurate diagnosis.

(b) The patient should be asked to void in one's presence, when the bladder is supposedly filled to its greatest capacity, and this voiding should be by means of the three-glass test, in vessels suitably gauged, so that the total amount can be quickly added together.

(c) Examination of the urine at this time shows it to be, if in the early stage of normal or lowered specific gravity, while in the later stage it will be of normal or raised specific gravity, depending upon the amount of sediment present. The urine is invariably acid, save where there has been retention and infection due to an intercurrent trouble, and a quality of acidity as will lead one to remark about the same. Albumin is usually present in the early stages in small quantities and is invariably present in the later stages in large quantities when secondary infection has occurred. The amount of indican is increased, inasmuch as the patients bowels are usually somewhat constipated, due to the disinclination of the patient to move his bowels because of the pain and pressure caused in the perineal region. Microscopically, we usually find, to our surprise, at this time, the red blood cells, due to the unseen hemorrhage in very early stages, with perhaps a very few epithelia, while as the disease progresses the secondary infection creeps in and we find also an increase in the pus cells and epithelia, together with at times kidney epithelia and casts. The latter should lead us always to suspect and search for the primary cause as being in one or the other kidney, rather than in the bladder itself. Next we return to the examination of the urine from another standpoint; namely, the withdrawal of the sterile specimen of urine, avoiding contamination with the smegma bacillus and especially taking care to collect the first and the last portions in sufficient amounts to allow of centrifuging, and thereby collecting the bacilli in concentrated quantities.

Usually it is found that the urine is not centrifuged sufficiently long enough to throw down the tubercle bacillus, and many cases are

allowed to go undiagnosed by reason of this fact. Each tube should be twirled for at least 20 minutes at a high speed, the supernatant fluid drawn off and the concentrated parts at the bottom placed in one test tube and again centrifuged. In this manner it will be almost impossible for one to miss collecting at least a few of the bacilli, if they are at all abundant in the urine. But it is by reason of the fact that at first the bacilli are so few that they are overlooked. It has been suggested that the use of a small amount of albumin intermixed with the urine collects and entangles the bacilli more readily and carries them to the bottom, and I believe this to be of great value where they are exceedingly few in number. This sterile concentrated specimen should then be divided into two parts, and from the first there should be made at least four or five slides for staining.

Probably the best method is that of Papenheim, which causes the smegma bacilli to be decolorized and counter-stains the tubercle bacilli in the usual way. It may involve the search of several slides before one can find one or two of the tubercle bacilli. The smegma bacillus is found to be more slender; it is not granular, and the groupings of the tubercle bacilli are more characteristic, while the smegma bacillus decolorizes with hydrochloric acid and alcohol, whereas the tubercle retains its stain. The second portion of the centrifuged amount should be employed in animal experimentation. This should be washed repeatedly and then rubbed up with normal saline solution, and from one to two cc. of the solution injected into the peritoneal cavity of a guinea pig which has been previously weighed and properly marked. Should the pig survive, at the end of about four weeks, or according to his loss in weight, he should be killed and examination made of the abdominal organs, where it is found that the bacilli, thrive the best. Better is it to make injections into several animals, by reason of the fact that quite often an animal will die of another infection, usually streptococcic, and the experiment has then been rendered null and void. Foster suggests that it is best to heat the saline mixture for ten minutes at 60° C., thus killing, as he claims, all of the inflammatory organisms except the tubercle itself.

(d) Having cultured out as best we may, and made the smear of the urine, we next proceed to the examination of the patient in general, carefully noting the time at which the examination is made and the temperature and the pulse. Better is it that we take the temperature and the pulse for a period of 24 to 36 hours, in two-hour periods, for by this means we are enabled to note the variations. For this purpose it is usually wisest to send a patient to

the hospital, where he can be most carefully watched for periods of two or three days, as the diagnosis is not easy, save as one follows a definite line of thought and action, and after obtaining clinical evidence combines all his findings into one conclusion. Of course, the finding of the tubercle bacillus itself conclusively proves the disease, but in the average every-day hurry of the physician he is not in a position to carry out the necessary clinical observations, and this is best done by those best accustomed to these methods, or under his direction.

(e) Then comes the local examination, which should not be resorted to, save as the previous suggestions have been more or less negated from the standpoint of a positive tuberculosis.

(f) Palpation over the abdominal wall, and percussion, give many times clues as to the condition, by reason of the extreme soreness of the pericystic tissue when it has become invaded with the bacilli. By all means, and in every case, should it be regarded that the physician has not been true to the patient, unless he makes a (g) thorough rectal examination, especially regarding the condition of the rectum, prostate and seminal vesicles.

(h) Also is he neglectful if he does not examine carefully the spermatic cord, in so far as he is able, with its epididymis, comparing both sides, and if necessary and in doubt, making an immediate comparison between the patient's genital organs and a normal set, in order that the differences may be quickly noted and dwelt upon.

(i) Finally, and as a last resort, if all the others have proved negative thus far, we may turn to the use of the cystoscope or segregator, or both.

Personally, I am in favor of utilizing the cystoscope first, but for this purpose there must be a fixed technique and a certain adroitness which comes with practice, as well as a quickness of the eye in recognizing abnormal conditions present within the bladder, also to be only gained by practice. So far as the use of the cystoscope is concerned in a tubercular bladder, I do not believe that with proper precautions any damage to the organ is done, where it is capable of holding four ounces or more of urine; for I have frequently seen where dilation by water or by air has caused extreme pain in a patient suffering from a cystitis, tubercular or otherwise, that the careful use of oxygen gas will allow one to search the bladder perfectly, without one iota of pain to the patient. Having satisfied oneself as to the condition of the bladder, and if one is suspicious of a tuberculosis of the kidney by reason of the difference in the pictures presented, it is an easy matter to catheterize one or both ureters, as occasion seems to demand, or to use the segregator.

For the beginner there will probably be much anguish in attempting to differentiate with the eye a tuberculous urine flowing down into a rather early infected bladder; but as he becomes adept in the use of the instrument, and more skilled in his sight and differentiation, I believe it is only right that he should abstain, in so far as he is able, from running the risk of infecting a good kidney by utilizing a ureteral catheter. If the bladder presents a surface and contour sufficiently satisfactory, far better is it, I think, for one to use the segregator in order to draw the urine from either kidney. But it must be remembered that the use of the segregator has its drawbacks, unless a thorough understanding of the location of the ureters and the conformation of the trigone is present beforehand. In general the use of instruments within a known tubercular bladder is one to be decried, inasmuch as there is a prolonged spasm, as a rule, which is extremely painful to the patient.

(j) Last of all, we may try the tuberculin test, but this I believe to be inaccurate, except in the very early stages where the secondary infection has not presented itself.

For the differential diagnosis, we have first to notice those cases of simple cystitis, in which there is usually the sudden onset following the infection of the urethra, and where the pus is in quite considerable abundance. From the inception of the disease there is usually less irritability in this condition than in tuberculosis, and the hemorrhage is decidedly less. The condition is helped materially by the use of nitrate of silver injections, while the tuberculous bladder is aggravated to an extreme degree. The temperature is higher and more continuously so, while the pulse is much more aggravated. Again, the histories of the two conditions are not to be compared, for in one, namely, in the tuberculous condition, there seems to be for the time a resistance to secondary infection, while in the other, the simple cystitis, the secondary infection is almost immediately presented; and finally there is the discovery of the bacillus in the urine or a tuberculosis in some other part of the body. From stone, which can only resemble it because of the pain, the blood and frequency of urination, we have but to remember that the use of the cystoscope or of the searcher speedily clears up the condition, while if we have not these at hand we can easily remember that in stone a change of position, and especially where one rides over a rough road or on horseback, greatly aggravates the condition, while the dorsal decubitus alleviates the pain which is present. Also the pain of vesical calculus is mostly located deep in behind the pubis, radiating down to the groins, backward to the anus and forward to the end of the penis, being especially present at the end of urination. This condition of

calculus is generally seen in people of elderly life who give a distinct history of being drinkers of hard water, while occasionally a small calculus may have been passed from the bladder.

From tumor of the bladder, there is usually less irritability, the cystitis may or may not be more marked, but usually is exceedingly slight at first. There is continuous and abundant bleeding, without frequency of micturition, and with no pain whatsoever until a secondary cystitis is set up, while the blood is intimately intermingled with the urine, is decidedly more of a hemorrhage of a continuous form extending over an intermittent period.

Hypertrophy of the prostate, where we have a pain referable to the penis, some hemorrhage from the prostatic urethra, and only a slight reduction of the urine, is best made out by means of the cystoscope and rectal examination, and by inoculation of the guinea pig, which gives a negative result; for in this condition, where we have only a slightly enlarged prostate when uninterfered with, there is found the secondary infection only a long while after the primary condition.

The next condition, contraction of the neck of the bladder, is hard to differentiate, for here the factor which has caused the contraction enters in and may simulate a tuberculosis of the posterior urethra. However, in the non-tuberculous form there seems to be a more severe posterior urethritis, and of course the absence of the tubercle bacillus is a partial proof against the occurrence of the disease. I say "partial proof," for I believe many cases go undiagnosed because of the inability to prove the presence of the tubercle bacillus. If there be, however, a simple hypertrophy of the prostate or a slight erosion or trauma of the mucous membrane at the neck of the bladder, together with a mild cystitis present in the neighborhood, it may be exceedingly hard to make a differential diagnosis.

Lastly, we have to diagnose, but not in a differential manner, the usual primary condition; namely, renal tuberculosis. Here we take into consideration the onset of the bladder symptoms as being the most prominent, but by carefully recalling the patient from time to time in his memory, we can cause him to elucidate facts which prove that one or the other kidney is mostly at fault, and we have then to consider, not the treatment of the bladder so much as the infection higher up. Of course, we have the symptoms of tubercular cystitis presented, together with those of kidney infection. There is the customary pain of a hydronephrosis followed later by that of pyelonephritis and the continuous void-

ing of an exceedingly irritable urine which quickly becomes infected. The quantity of the urine becomes more limited in character, and as the involvement of the kidney progresses, the temperature is higher, there is rapid emaciation, distinct tenderness over the area of the kidney which is infected, together with the positive diagnosis made by the cystoscope, by ureteral catheterization or by the segregator. But it is in these cases that the skill of the diagnostician is pushed to the utmost, as in the greatest percentage the kidney is at fault, and local treatment is instituted for simply a misunderstood systemic condition.

Prognosis.—So far as that of life, the prognosis is good, as the condition lasts for years in apparently an unchanged form. When secondary infection sets in, however, the prognosis then becomes grave, as does a secondary condition in any form of trouble with the genito-urinary organs. So far as cure, the prognosis is practically fatal, for it would seem that despite all treatment the percentage of cures is but very small. Exceedingly unfavorable must that prognosis be where the genitals are affected, such as the prostate, the testicle or the seminal vesicles, or where a persistent secondary cystitis sets in. The disease is slow, is irregular in its exacerbations, but surely progresses from year to year. Life is unendurable and death may sometimes be due to metastases. Where the kidney is at fault, the prognosis is excellent, as recovery usually follows a nephrectomy of the primary focus.

Treatment.—What shall we say of treatment in general? It may be carefully stated that surgery, except in involvement of the kidney, is unavailing. The patient should be treated as a tubercular patient, with general hygienic management and plenty of fresh air and general treatment of the chronic cystitis, omitting all forms of local treatment, save when the patient is in the hands of a careful and competent man. Rest in bed, with such opiates as are necessary at times to control the pain, light diet when the stomach becomes upset, and gentle irrigation of the bladder with a solution of boric acid, 2 per cent., iodoform 1 to 5 per cent. suspended in mucilage or olive oil, two or three ounces at a time; bichloride of mercury, 1-5000, 20 drops gently instilled into the bladder, after Guyon. Nuclein in 5 per cent. saline solutions, or ichthyol in 2 to 5 per cent. solutions, as recommended by Senn and Horwitz; lactic acid in 5 per cent. solutions, as suggested by Cumston, are probably the best for local use. The use of the bichloride of mercury must be carefully gauged, as there is a reaction and severe pain, which must subside before at-

tempting a repetition. Of all these, the iodoform emulsion and Chetwood's suggestion as to thallin sulphate in a watery solution of 3 to 12 per cent. seem to give the most relief. Patients must beware of all drugs which act as irritants upon the bladder, such as alcohol, spices, juniper, cannabis indica, nux vomica, and especially is the nitrate of silver never to be thought of.

Internally, the use of mild urinary antiseptics, such as the balsamics and the alkalies, may be tried, although they are very likely to produce an aggravation of the symptoms. Vaughn has suggested the use of nuclein by stomach, taking four grammes of a 50 per cent. solution daily, when all the other medicaments are found to be of no avail.

Surgically, there seems to be a grave doubt as to whether any benefits can be obtained from this source. It is to be remembered that first we have a bladder always in motion and therefore continuously acting as the point of least resistance when once infected. Hence it behooves us to give the bladder rest—almost an impossibility, save by a cystostomy, with an ultimate secondary infection. Second, the inaccessibility of the lesions forbid of the frequent application of medicines directly upon the spots and of such strength as to absolutely destroy the tubercle bacilli located deep down in the tissue, without injuring the well

parts of the bladder wall. And, last of all, the supposition that the diseased portions may be removed is but a fallacy.

In an article by Dr. Granville McGowan, of Los Angeles, published in the San Francisco State Journal of Medicine, Vol. III, No. 2, we find that he recommends the thorough curettage of ulcers and thorough dilatation of the vesical neck of the prostatic urethra, following this by sewing the bladder into an incision made suprapubically, and opening it, curetting the ulcers, allaying the hemorrhage by the use of adrenal gland extract and hot water, and then touching the base of the ulcers with a 50 per cent. solution of zinc chloride, with pure lactic acid or Paquelin's cautery. Subsequent treatment consists in the suprapubic drainage, washing the bladder with bichloride of mercury, one to ten or fifteen thousand, frequently during the day, and thus allowing nature to aid at her best. Some cases have been reported, following this method, as being absolutely cured; but inasmuch as tuberculosis is such an insidious disease, it would be well to take these reports with some misgivings as to the ultimate outcome.

Notwithstanding these brilliant reports of isolated cases, I must believe that first we must diagnose our case correctly, and then if it be tuberculous, treat it medically.

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